

Melatonin use among children and adolescents: a Finnish nationwide drug utilization study

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Objectives

Melatonin is increasingly used in the pediatric population to manage sleep disorders, yet population-level trends, long-term use patterns, and co-medication remain underexplored. This study examines trends in melatonin use among children and adolescents in Finland 2017–2024, with emphasis on the year 2024.

Methods

Data on all pediatric (aged 0–17 years) melatonin dispensations recorded in centralized national Prescription Centre was retrieved for 1.1.2017–31.12.2024. Descriptive analyses were conducted using R. Outcomes, stratified by age group and sex, included annual prevalence per 1,000 individuals, long-term use (≥ 3 dispensations/year), and co-dispensation of medications for neuropsychiatric conditions (anxiolytics, antidepressants, ADHD medications) or other sleep medications within the same calendar year.

Results

Melatonin use increased with age and over time (Figure 1), peaking in 2024 among 14–17-year-olds, with rates of 55.5 per 1,000 females and 31.5 per 1,000 males. The relative increase in the number of individuals receiving melatonin dispensations 2017–2024 varied across age groups, ranging from 117% to 470%, with the highest increases in younger age groups, particularly among females. Long-term use was common, ranging from 78% in males aged 0–4 to 93% in those aged 10–13. Among males, co-dispensation with neuropsychiatric medications increased with age, peaking at 81% in the 10–13 age group and declined thereafter. Among females, this proportion increased steadily, reaching 76% in the 14–17 age group. Co-dispensation of other sleep medications during the same year was most common among 14–17-year-old females (33%).

Table 1. Melatonin use and co-medication by age group, 2024.

Age groups	Users per 1,000 individuals of corresponding age		Percentage growth in number of users, 2017-2024		Percentage of users with ADHD or psychotropic medication*		Percentage of users with another hypnotic medication**		Percentage of users with long-term use***	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
0–4	2.64	1.50	388%	470%	19.6%	24.6%	6.9%	14.6%	78.2%	79.5%
5–9	17.89	7.94	360%	454%	76.8%	60.5%	3.4%	4.8%	91.4%	86.1%
10–13	26.77	20.52	249%	222%	81.2%	69.8%	6.3%	18.6%	92.5%	88.0%
14–17	31.54	55.53	132%	117%	71.4%	75.8%	20.2%	32.5%	87.7%	91.6%

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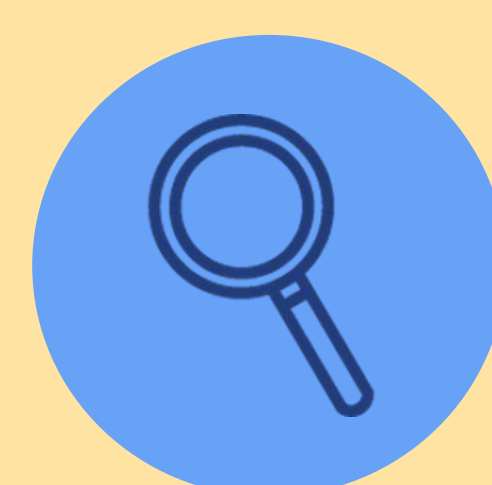
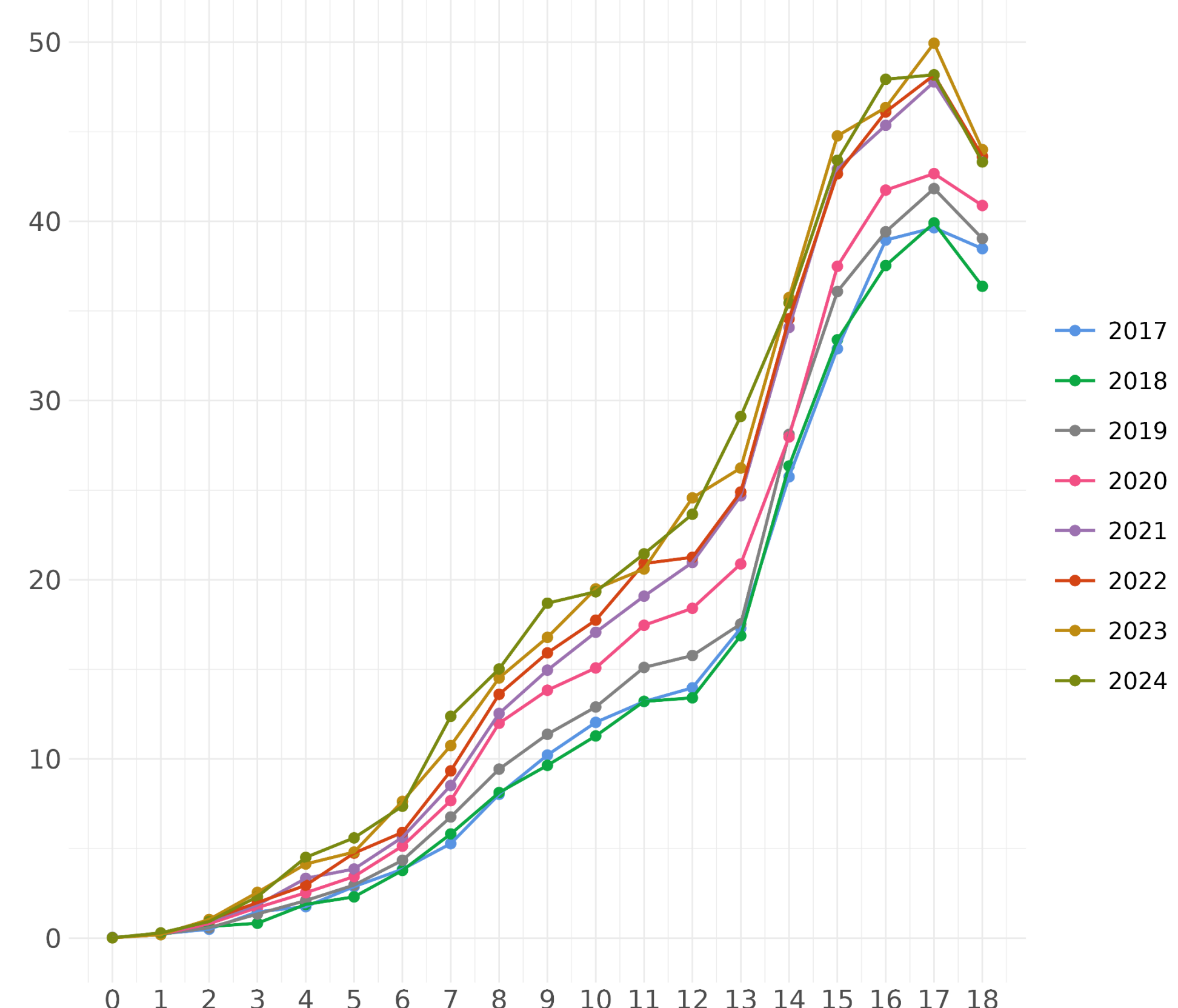


Defined as * ≥ 1 dispensation of N05B, N06A, or C02AC02; ** ≥ 1 dispensation of the following active substances: doxepin, doxylamine, mirtazapine, nitrazepam, low-dose quetiapine, temazepam, triazolam, zolpidem, or zopiclone; *** ≥ 3 dispensations of melatonin.

Conclusion

Melatonin use among Finnish children and adolescents increased substantially 2017–2024, particularly in mid-to-late adolescence. It was frequently used alongside neuropsychiatric medications, suggesting a role in broader pharmacological management of neuropsychiatric conditions. These findings highlight the expanding role of melatonin in pediatric sleep management and underscore the need for further research into its long-term safety and prescribing practices.

Figure 1. Annual prevalence of melatonin use among pediatric population by age per 1,000 individuals in Finland, 2017-2024.



2.2- to 5.7-fold increase in pediatric melatonin use between 2017 and 2024

Up to 81% had co-medication with ADHD and psychotropic medicines

Up to 93% had long-term use